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| APPLICATION NO.   | FILING DATE        | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|--------------------|----------------------|---------------------|------------------|
| 10/702,130  | 11/05/2003         | Hiroshi Kurachi      | 791_230             | 6835             |
| 25191<br>BURR & BROWN<br>PO BOX 7068<br>SYRACUSE, NY 13261-7068 | 7590<br>02/11/2008 |                      |                     |                  |
| EXAMINER  |                    |                      |                     |                  |
| OLSEN, KAJ K  |                    |                      |                     |                  |
| ART UNIT  |                    | PAPER NUMBER         |                     |                  |
| 1795  |                    |                      |                     |                  |
| MAIL DATE   |                    | DELIVERY MODE        |                     |                  |
| 02/11/2008  |                    | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/702,130

**Applicant(s)**

KURACHI ET AL.

**Examiner**

KAJ K. OLSEN

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5, 6, 13, 14, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/53302 (hereafter “WO ‘302”). For the rejection of WO ‘302, the examiner will rely on the English language disclosure of Neumann et al (USP 6,666,962). All citations to text in WO ‘302 will refer to that text’s location in Neumann.

3. With respect to claim 1, WO ‘302 discloses a gas sensor comprising a gas detecting section (11, 15, 17) and a heater section secured in the gas sensor. The heater section including a heating element 23 sandwiched between two porous layers 25 (col. 2, ll. 36-38) that define a support 25 that supports the heating element. WO ‘302 further discloses a porous space 33 that extends along a longitudinal direction of the gas sensor (see fig. 2 and 3) and an opening section 21 extending substantially perpendicular to the porous space 33 which would inherently provide communication between the porous gas space and the heater section because the heater section (see fig. 1). Moreover, because heater support layers 25 were described as being porous (col. 2, ll. 36-38), this indicates that the opening section 21 would inherently reduce pressure generated between the heating element and the support. See fig. 1 and col. 2, ll. 19-57. With respect to porous space 33 reading on the claimed “reference gas space”, even though WO ‘302 actually

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refers to element 21 as being the reference gas channel, because porous layer 33 contains reference gas that had been delivered by opening section 21, it reads on the broadest reasonable interpretation of “reference gas space”. Although WO ‘302 does not disclose utilizing opening 21 for the purpose of reducing pressure, it has been well settled that a patent cannot be granted for a new reason for doing what was already old in the art.

4. With respect to claim 2, because opening 21 extends to the end of the sensor (fig. 2 and 3), it would ensure that the support is exposed to an external atmosphere.

5. With respect to claims 5 and 6, WO ‘302 also discloses a solid electrolyte diaphragm 11 and a pair of electrodes (15, 17) disposed on each side of the diaphragm. See fig. 1.

6. With respect to claims 13, 14, 17 and 18, because opening 21 extends all the way to the end of the sensor (fig. 2 and 3), then the gas sensor also includes an air inlet space and the opening section opens to the air inlet space.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 4, 7, 8, 15, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO ‘302 in view of Müller.

9. With respect to claims 3 and 4, WO '302 discloses the heating element 23, the support 25 and teaches that the opening section is provided such that a section of the heating element is exposed to an external atmosphere. See fig. 1. WO '302 did not explicitly recite the presence of a lead for the heater. However, common sense dictates that one must connect the heating element to a lead so as to deliver power to the heating element. The use of such a heating element lead 54 is shown by the teaching of Müller. See fig. 5. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Müller for the sensor of WO '302 so that power can be appropriately delivered to the heating element.

10. With respect to claims 7, 8, 15, 16, 19, and 20, see the discussion of claims 5, 6, 13, 14, 17 and 18 above.

11. Claims 9-12 rejected under 35 U.S.C. 103(a) as being unpatentable over WO '302 or WO '302 in view of Müller as set forth for claims 5, 6, 7, or 8 above, and in further view of Haecker et al (USP 4,283,441).

12. The WO '302 or WO '302 and Müller set forth all the limitations of the claims and disclosed the use of zirconia (col. 4, ll. 12-21), but did not explicitly recite the use of stabilized zirconia. Haecker teaches that the stabilized form of zirconia has a number of advantages including lowered sintering activity, increased ion conductivity, and temperature change stability. See col. 2, l. 52 through col. 3, l. 18. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize stabilized zirconia as taught by Haecker for the sensor of WO '302 or WO '302 in view of Müller so as to benefit from the advantages highlighted above.

***Response to Arguments***

13. Applicant's arguments filed 1-16-2008 have been fully considered but they are only partially persuasive. In particular, the examiner agrees that amended claim 1 reads free of the teaching of Müller as a primary teaching and those rejections have been withdrawn. The arguments concerning WO '302 were not persuasive because porous layer 33 reads on the reference gas space as it is currently defined.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAJ K. OLSEN whose telephone number is (571)272-1344. The examiner can normally be reached on M-F 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/  
Primary Examiner, Art Unit 1795  
February 10, 2008